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EXAMINER VERDIER, CHRISTOPHER M				
ART UNIT 3745		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/560,360

Applicant(s)

OCHIAI ET AL.

Examiner

Christopher Verdier

Art Unit

3745

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-29 is/are pending in the application.
- 4a) Of the above claim(s) 17-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- 7) ☐ Paper No(s)/Mail Date 3-9-06, 1-19-10

Receipt and entry of Applicant's Preliminary Amendment dated May 5, 2006 is acknowledged.

Election/Restrictions

Applicant's election without traverse of species II in the reply filed on May 3, 2010 is acknowledged.

Claims 17-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Drawings

The drawings are objected to because in figures 2, 4-5, and 8-9, the views must not be connected and should be labeled separately as figures 2a, 2b, 4a, 4b, 5a, 5b, 8a, 8b, 9a, and 9b. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 23, the second to last line, "a portion" is unclear as to which element (the leading edge, suction sidewall, main body, etc.) this refers to. In claim 26, line 4, "a portion" is unclear as to which element (the coating, the SiC, or the untreated component) this refers to. In claim 28, lines 1 and 3, "portion" is unclear if this refers to the portion in claim 26, line 3, or claim 26, line 4.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23, 25, and 29, as far as they are definite and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by WIPO Publication WO 00/53896 (figures 1-2; US 6,769,866 is the English equivalent). Disclosed is an airfoil 1 of a rotor a turbine engine, comprising: a main body including a convex suction sidewall faced to a suction side, a concave pressure sidewall opposed to the suction sidewall, a leading edge 12, a trailing edge 10 opposed to the leading edge, a tip end face at an axially outer end of the main body, and an unnumbered platform at an axially inner end of the main body, the platform including a flow pathway and a dovetail; a protective coating coated on the leading edge, the suction sidewall, the pressure sidewall, the tip end face, and the flow pathway, the protective coating including SiC (column 4, lines 42-50 in the US equivalent). A gas turbine engine includes the airfoil. The recitation in claim 23, the last two lines of “being formed by processing a portion as a workpiece of an electric spark machine with a tool electrode including Si in a liquid including alkane hydrocarbons”, and the recitation in claim 29 of “An airfoil surface-treated by the method of claim 29” are product-by-process limitations. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product-by-process claim does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim 26, as far as it is definite and understood, is rejected under 35 U.S.C. 102(b) as being anticipated by Goto 6,492,611. Disclosed is a method comprising: forming a coating

including SiC coated on a portion of an untreated component W by processing a portion as a workpiece of an electric spark machine with a tool electrode 3 of SiC (which includes Si) in a liquid including alkane hydrocarbons (oil containing hydrocarbons). The recitation in claim 26, lines 1-2 of “surface-treatment of a component of a turbine engine” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim 26, as far as it is definite and understood, is also rejected under 35 U.S.C. 102(b) as being anticipated by Magara 5,434,380. Disclosed is a method comprising: forming a coating including SiC coated on a portion of an untreated component 5 by processing a portion as a workpiece of an electric spark machine with a tool electrode 4 of Si in a liquid 8 including alkane hydrocarbons (mineral oil, kerosene, or silicon oil). The recitation in claim 26, lines 1-2 of “surface-treatment of a component of a turbine engine” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*,

535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 23 and 25, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO Publication WO 00/53896 (figures 1-2; US 6,769,866 is the English equivalent) in view of Bettridge 6,444,332. WIPO Publication WO 00/53896 discloses an airfoil substantially as claimed as set forth above, but does not explicitly disclose

that the protective coating is coated on the leading edge, the suction sidewall, the pressure sidewall, the tip end face, and the flow pathway.

Bettridge shows an airfoil 12 (which inherently has a suction sidewall and a pressure sidewall, due to its airfoil shape), having a protective coating 20 on a leading edge, the suction sidewall, the pressure sidewall, a tip end face, and a flow pathway on a platform (column 3, lines 9-20), for the purpose of protecting these regions against oxidation.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the protective coating of the airfoil of WIPO Publication WO 00/53896 on the leading edge, the suction sidewall, the pressure sidewall, the tip end face, and the flow pathway, as taught by Bettridge, for the purpose of protecting these regions against oxidation.

Claim 24, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO Publication WO 00/53896 (figures 1-2; US 6,769,866 is the English equivalent) in view of Burns 6,042,898. WIPO Publication WO 00/53896 discloses an airfoil substantially as claimed as set forth above, but does not disclose the protective coating being given residual compressive stress by a peening treatment.

Burns (column 1, lines 11-27) shows a gas turbine engine component having an oxidation resistant coating which is then peened, which introduces residual compressive stress, for the purpose of enhancing the material properties of the gas turbine engine component.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the protective coating of the airfoil of WIPO Publication WO 00/53896 such that the protective coating is given residual compressive stress by a peening treatment, as taught by Burns, for the purpose of enhancing the material properties of the gas turbine engine component.

Claim 24, as far as it is definite and understood, is also rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO Publication WO 00/53896 (figures 1-2; US 6,769,866 is the English equivalent) and Bettridge 6,444,332 as applied to claim 23 above, and further in view of Burns 6,042,898. The modified WIPO Publication WO 00/53896 shows an airfoil substantially as claimed as set forth above, but does not show the protective coating being given residual compressive stress by a peening treatment.

Burns (column 1, lines 11-27) shows a gas turbine engine component having an oxidation resistant coating which is then peened, which introduces residual compressive stress, for the purpose of enhancing the material properties of the gas turbine engine component.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified protective coating of the airfoil of WIPO Publication WO 00/53896 such that the protective coating is given residual compressive stress by a peening treatment, as taught by Burns, for the purpose of enhancing the material properties of the gas turbine engine component.

Claim 27, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over either (Goto 6,492,611 or Magara 5,434,380) in view of Burns 6,042,898. Goto and Magara disclose methods substantially as claimed as set forth above, but do not disclose processing the coating with a peening treatment.

Burns (column 1, lines 11-27) shows a gas turbine engine component having an oxidation resistant coating which is then peened, which introduces residual compressive stress, for the purpose of enhancing the material properties of the gas turbine engine component.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to process the coating of either Goto or Magara with a peening treatment, as taught by Burns, for the purpose of providing enhanced material properties.

Claim 28, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over either (Goto 6,492,611 or Magara 5,434,380) in view of Japanese Patent 5-148,615 and WIPO Publication WO 00/53896. Goto and Magara disclose methods

substantially as claimed as set forth above, including tool electrodes that move to approach portions of a workpiece, but do not disclose that the portion is limited to a leading edge, a suction sidewall, a pressure sidewall, a tip end face, and a flow pathway of the component.

Japanese Patent 5-148,615 (paragraph 16) teaches that it is known to use electric spark machine coating to coat a turbine blade, for the purpose of providing a coating application method.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the process of coating of either Goto or Magara to a turbine blade, as taught by Japanese Patent 5-148,615, for the purpose of providing a coating application method.

WIPO Publication WO 00/53896 (figures 1-2; US 6,769,866 is the English equivalent) shows an airfoil 1 of a rotor a turbine engine, comprising: a main body including a convex suction sidewall faced to a suction side, a concave pressure sidewall opposed to the suction sidewall, a leading edge 12, a trailing edge 10 opposed to the leading edge, a tip end face at an axially outer end of the main body, and an unnumbered platform at an axially inner end of the main body, the platform including a flow pathway and a dovetail; a protective coating coated on the leading edge, the suction sidewall, the pressure sidewall, the tip end face, and the flow pathway, the protective coating including SiC, for the purpose of providing oxidation resistance.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the coating on the modified turbine blade to a leading edge, a suction sidewall, a pressure sidewall, a tip end face, and a flow pathway of the component, as taught by WIPO Publication WO 00/53896, for the purpose of providing oxidation resistance. The recitation of the coated portion being limited to a leading edge, a suction sidewall, a pressure sidewall, a tip end face, and a flow pathway of the component is a matter of choice in design. It would have been obvious to a designer having ordinary skill in the art to limit the coating to specific portions of the turbine blade that are desired to be protected, in order to provide oxidation protection.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 26, as far as it is definite and understood, is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 75 of copending Application No. 10/563,173. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 27, as far as it is definite and understood, is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 75 of copending Application No. 10/563,173 in view of Burns 6,042,898. Claim 75 of copending Application No. 10/563,173 claims substantially the same subject matter as claim 27 of the instant application, but does not claim processing the coating with a peening treatment.

Burns (column 1, lines 11-27) shows a gas turbine engine component having an oxidation resistant coating which is then peened, which introduces residual compressive stress, for the purpose of enhancing the material properties of the gas turbine engine component.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to process the coating of claim 75 of copending Application No. 10/563,173 with a peening treatment, as taught by Burns, for the purpose of providing enhanced material properties.

Claim 28, as far as it is definite and understood, is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 75 of copending Application No. 10/563,173 in view of Japanese Patent 5-148,615 and WIPO Publication WO 00/53896. Claim 75 of copending Application No. 10/563,173 claims substantially the same subject matter as claim 28 of the instant application, but does not claim

that the portion is limited to a leading edge, a suction sidewall, a pressure sidewall, a tip end face, and a flow pathway of the component by making a tool electrode approach the portion.

Japanese Patent 5-148,615 (paragraph 16) teaches that it is known to use electric spark machine coating with a moving electrode to coat a turbine blade, for the purpose of providing a coating application method.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the process of coating of claim 75 of copending Application No. 10/563,173 to a turbine blade with a moving electrode, as taught by Japanese Patent 5-148,615, for the purpose of providing a coating application method.

WIPO Publication WO 00/53896 (figures 1-2; US 6,769,866 is the English equivalent) shows an airfoil 1 of a rotor a turbine engine, comprising: a main body including a convex suction sidewall faced to a suction side, a concave pressure sidewall opposed to the suction sidewall, a leading edge 12, a trailing edge 10 opposed to the leading edge, a tip end face at an axially outer end of the main body, and an unnumbered platform at an axially inner end of the main body, the platform including a flow pathway and a dovetail; a protective coating coated on the leading edge, the suction sidewall, the pressure sidewall, the tip end face, and the flow pathway, the protective coating including SiC, for the purpose of providing oxidation resistance.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the coating on the modified turbine blade of claim 75 of copending Application No. 10/563,173 to a leading edge, a suction sidewall, a pressure sidewall, a tip end face, and a flow pathway of the component, as taught by WIPO Publication WO 00/53896, for the purpose of providing oxidation resistance. The recitation of the coated portion being limited to a leading edge, a suction sidewall, a pressure sidewall, a tip end face, and a flow pathway of the component is a matter of choice in design. It would have been obvious to a designer having ordinary skill in the art to limit the coating to specific portions of the turbine blade that are desired to be protected, in order to provide oxidation protection.

These are provisional obviousness-type double patenting rejections.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goto '868 is cited to show a SiC electrode used in an oil treatment solution. This reference could also have been applied as it anticipates at least claim 26 under 35 U.S.C. 102, but is not applied at this time in order to avoid multiple rejections.

Rossmann and Freling are cited to show turbine blades with specific coating portions.

Mandigo is cited to show dielectric electric discharge machining in hydrocarbon oil.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Verdier/
Primary Examiner, Art Unit 3745

Christopher Verdier
Primary Examiner
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